

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY,
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FOREST ENTOMOLOGY.

PROGRESS REPORT

SAN JOAQUIN PROJECT

SIERRA NATIONAL FOREST

Northfork, Calif.

April 10, 1923.

J. M. Miller
Assistant Forest Entomologist

San Joaquin Project

325.2b

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PROGRESS REPORT - SAN JOAQUIN PROJECT

Northfork, Cal.- April 10, 1923.

The conditions, purpose, and methods of the project have been fully covered to date in two previous reports titled as follows:

First Annual Report - May 1921.

Revised Working Plan - April 1922.

As this is a progress report the considerations discussed in these reports will not be reviewed here. Results are now available for the seasons of 1920 and 1921. Cost figures are also available for the season of 1922 but data pertaining to annual loss and results of the experimental work of that season will not be secured until the spring cruising of 1923 is completed.

The volume of timber treated and cost of the project to date are given in table I.

The total number annual losses from 1919 to 1922 based upon systematic cruising of the area is shown in table II.

1920

In the spring of this year maintenance control was initiated on the project area of 130,000 acres. The infestation at this time was classed as endemic, the loss of the preceding year amounting to 2,923,000 board feet*, or about .15 of 1% of the pine stand.

*

The loss for 1919 given on page 4 of the first annual report is given as 2,549,500, part of this figure being based upon an estimate. In 1922 a complete marking of the entire area was made and records secured for the total given above.

The amount spent upon spring and summer control work was \$7,135.06. The losses for 1920 amounted to 1,551,480, less than one tenth of 1% of the stand and, a reduction over the preceding year of 1,471,700 or 50% in volume.

1921

This season only summer maintenance control was attempted, the aim being to spread the protection over the entire project area at a cost not to exceed 3 cents per acre. Work was carried on where the infestation was the heaviest or most accessible, trap trees were used to a considerable extent but no attempt was made to work the entire area or to work any part of it intensively. A total of \$3,700.07 was expended.

The season proved to be one of generally increasing infestation both within and without the project area. The annual loss increased to 2,798,380 feet, or nearly as great as 1919. The conclusion from this season's work was that under an increasing infestation, a light application of maintenance control, treating less than 50% of the seasonal infestation is not sufficient to check the increase.

1922

Under the revised plan adopted for this season, the actual control work was limited to approximately 24,000 acres in the Chiquito District and the entire balance of the project area was closely cruised and studied as a check.

The control area was divided into small units averaging about 4,000 acres each. The method of control was

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was varied for each of these units.

As yet only the cost figures are available for work carried out during 1922. A summary of these is given in table III. The average cost of \$7.25 per M. is not unduly high when the conditions of the project area are taken into consideration. Trail improvements, such as building a bridge, over Chiquito creek, were essential to the continuation of the project and could only be financed from the control fund. This activity, together with firefighting, packing, and getting men to and from the control area amounted to nearly 22% of the costs of the project.

Detail of the costs on the individual units of the Chiquito District are given in table IV. It was possible to consistently work only four of the units outlined.

26 a Logans Spring and summer work with trap trees.

A good clean up was secured on the overwintering infestation on this unit. The follow up work during the summer was limited mainly to trap trees. The high cost of \$14.62 was due to concentration of work upon trap trees of small diameters.

26 b Forked Meadow extermination.

The purpose of this unit in the plan is to determine whether highly intensive control work is possible and feasible, upon a small non-isolated area. The work on this unit was given precedence and any modifications of the plan that were necessary were made on other units. This unit was

cruised 12 times during the season and only a very small percent of the infestation escaped treatment. In the final cruise made of the unit the latter part of November only two infested trees could be found. This sort of work cost 45¢ per acre and if the results secured are permanent intensive work may in the long run prove to be practicable.

26 c West Chiquito Spring and Summer work without trap trees.

Owing to the shortening of the spring work by warm weather in May a lower percent of the overwintering infestation was treated than planned. More of the summer infestation would also have been treated had it not been for the unexpected amount of work which developed on Unit 26 b and the trap tree work on Unit 26 a.

26 d Arnold Check.

In the revised working plan of April 1922, it was proposed to cover this unit with spring work. This plan was abandoned in May when it was found that the work could not be completed before the emergence of the spring broods. Only two trees were treated but the unit was closely cruised as a check.

27 a Fullers Check.

This small unit was originally included in 27, which was to be marked as a check. Owing to a misunderstanding by the crew foreman the unit was covered with spring work.

It will not be worked in the spring of 1923 but will be studied as a check.

28 Dalton, Spring work.

This unit was covered with spring work in 1922 according to the original plan.

Plans for Season of 1923.

It is essential that the general plan now in effect be continued during the seasons of 1923 and 1924. When the results for these seasons become available some conclusions can be drawn and recommendations made as to the methods best adapted to maintenance control and the feasibility and costs of their application.

During the season of 1923 the working plan initiated during the season of 1922 will be followed as closely as it is possible to do so. Any modifications of this plan will depend upon emergencies that may develop during the course of the season's work. The carrying out of spring work on unit 26 d will depend as in 1922 upon conditions developing at the close of the spring work.

Owing to the high cost and negative results secured through the use of trap trees on this area they will be discontinued if it is found that funds for the project will not be sufficient to carry through all the other work outlined.

Estimates for finances for the work during the season of 1923 are covered in the memorandum of March 28 to Supervisor Benedict, a copy of which is attached to this report.

Memorandum for Mr. Benedict.

Estimates for San Joaquin Project
FISCAL YEAR 1924.

Attached herewith is a statement of cost of the San Joaquin Control project for the season of 1922. The total cost of the project including the check cruising, fire fighting, and other activities amounted to \$3884.25, of which \$1355.99 was carried by the Bureau of Entomology. The compilation of data which was made at the close of the field season is not charged against the project.

To finance this work the Forest Service received an allotment of \$3500.00 recommended by the Board of Control of the Southern Oregon-Northern California project. The Bureau of Entomology contributed salaries of two Entomological Rangers during the field season.

The cost of the control work in the Chignito District, including the fire fighting, trail maintenance and bridge construction which was considered a part of the protection work for the area, amounted to \$3062.26. Of this amount \$704.00 was carried by the Bureau of Entomology.

The check cruising of the Northfork District, including 8 days fire fighting, cost \$821.29. Of this amount \$651.99 consisted of salary of Ranger Wagner, paid by the Bureau of Entomology, and \$170.00 field expenses paid by the Forest Service.

The total cost to the Forest Service of the project work for the field season amounted to \$2528.26. This left a balance of which expired December 31, 1922, under the provisions of the appropriation. As the reappropriation of funds for the Southern Oregon-Northern California project was uncertain, there was a possibility that the funds for the San Joaquin project for the season of 1923 would have to be secured in some other way. It was decided, therefore, to absorb the balance before December 31, in such a way as to assist in financing the project during

the spring of 1923. This was used in purchasing nonperishable supplies and in preparing a 4 inch base map which has been badly needed since the reorganization of the project area for the work started in 1922.

Estimates - Season of 1923
Fiscal year 1923.

Spring work:

Foreman Chiquito crew, April 1 to May 15	\$ 180.00	
Wages, 10 men, 6 weeks	1116.00	
Subsistence, 11 men 6 weeks	462.00	
Packing	75.00	
		<u>\$1833.00</u>

Summer work:

Foreman, May 15 to June 30	\$ 180.00	
Wages, 2 men, 6 weeks	241.50	
Subsistence, 3 men, 6 weeks	135.00	
		<u>\$ 556.50</u>

Total \$2389.50

This work will be provided for from the fund of \$3000.00 allotted for the calendar year from the Southern Oregon-Northern California project. In order to conserve this fund as much as possible the Bureau of Entomology will carry the salary of the Chiquito foreman, amounting to \$360.00. On the basis of these estimates the expense to the Forest Service will not exceed \$2029.00. If it is found that the period for the spring work can be shortened, due to a lighter infestation than expected, this expense will be correspondingly decreased.

Fiscal Year 1924.

Summer work, 1923:

Foreman Chiquito crew, July 1 to Oct. 30	\$ 480.00	
Wages, 2 men, 4 months	702.00	
Subsistence, 3 men, 4 months	480.00	
		<u>\$1662.00</u>

Check Cruising:

Field expenses Ranger Wagner	200.00	
		<u>\$1862.00</u>

Spring work, 1924:

Estimated at 75% of cost of spring work, 1923	\$1725.00
Total	<u>\$3587.00</u>

During the past two seasons the effort has been made to carry the project under a fixed annual appropriation of \$3500.00. Last season, because of the fact that we were using funds not originally intended for the project, an effort was made to economize in every possible way. For this reason the Bureau contributed the salary of the Chiquito foreman, altho this sort of work is not properly a function of the Bureau. A saving was also accomplished by using a small crew in the spring work resulting in a considerable balance at the close of the field season. This move turned out badly, however, as the spring period was shortened by warm weather early in May, and it was impossible to cover the entire area with the crew available. As a result we find that some parts of the area must be given greater attention this spring. This season the spring work will be carried out with a large crew and unless an exceptionally early spring comes on we will be able to thoroly cover the entire area.

The needs of the work for the spring of 1924 cannot be definitely foreseen, but I believe that if our plans this season are successful it will be possible to cut down cost by at least 25%.

Assistant Forest Entomologist.

Table No.1

COST OF PROJECT TO DATE

Season	Period	Amount No. Trees	Treated Volume	Cost	Cost Per N.B.M.
1920	Spring Work	375	715.450	\$4,909.15	\$6.86
	Summer	338	589.510	2,225.91	\$5.78
	Total	713	1,304.960	\$7,135.06	\$5.46
1921	Summer Work	462	694.470	\$3,709.07	\$5.33
	Total	462	694.470	\$3,709.07	\$5.33
1922	Spring Work	101	144.530	\$ 864.50	\$5.85
	Summer Work	290	275.700	\$2,215.76	\$8.04
	Total	391	420.230	\$3,062.26	\$7.25

CHARACTER OF TIMBER TREATED

	1920			1921			1922		
	No. Trees	Volume	%	No. Trees	Volume	%	No. Trees	Volume	%
Standing Trees	467	888.280	67	203	451.310	66	278	392.970	93
Windfalls	90	209.660	17	44	113.390	16			
Trap trees	156	216.020	16	215	129.770	18	113	27.260	7
Total	713	1,304.960	100	462	694.470	100	391	420.230	100

Table NO. 2

SAN JOAQUIN PROJECTSUMMARY OF ANNUAL LOSSES - STANDING TREES KILLED 1919 to 1922.

YEAR	SPECIES	NORTHFORK DISTRICT		CHICUITO DISTRICT		TOTALS		TOTALS	
		No.Trees	Vol.	No.Trees	Vol.	No.Trees	Vol.	No.Trees	Vol.
1919	Yellow Pine	719	1,129,190	458	940,640	1177	2,069,830		
	Sugar Pine	<u>72</u>	<u>513,270</u>	<u>99</u>	<u>340,080</u>	<u>171</u>	<u>853,350</u>		
		791	1,642,460	557	1,280,720			1348	2,923,180
1920	Yellow Pine	439	749,000	244	374,420	683	1,123,420		
	Sugar Pine	<u>61</u>	<u>271,140</u>	<u>51</u>	<u>156,920</u>	<u>112</u>	<u>428,060</u>		
		500	1,020,140	295	531,340			795	1,551,480
1921	Yellow Pine	569	951,420	434	1,032,050	1003	1,983,470		
	Sugar Pine	<u>158</u>	<u>680,430</u>	<u>48</u>	<u>134,480</u>	<u>206</u>	<u>814,910</u>		
		717	1,631,850	482	1,166,530			1209	2,798,380
1922 (Marked to Dec.1)	Yellow Pine	458	1,030,000	211	339,680	669	1,369,680		
	Sugar Pine	<u>234</u>	<u>1,407,420</u>	<u>8</u>	<u>12,790</u>	<u>242</u>	<u>1,520,210</u>		
		692	2,437,420	219	352,470			911	2,889,890

Total loss 1919 to 1922, Inc.

4263 10,162,930

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SUMMARY EXPERIMENTAL WORK - SEASON OF 1922.

Chiquito District - San Joaquin Insect Control Project.

Unit Number	26 A	26 B	26 C	26 D	27 A	28	Totals
Name	Lozan	Forked	West	Arnold	Fullers	Dalton	
Nature of Work done	Spring &	Spring &	Spring &			Spring	
	with Traps	ation	Without traps	Check	Check	Work	
Acorage	5.200:	3.320:	5.360	5.240:	1.120:	3.200:	23.440
Stand	43,520,000:	36,894,000:	69,120,000	61,440,000:	5,600,000:	19,200,000:	235,774,000
Volume Killed 1921	146,600:	249,440:	159,040	60,170:	21,390:	86,800:	923,720
Total time on unit							
Man Days	64.8	139.0	24.3	6.9	6.9	40.1	282
% of Time on							
Total Area	23.4%	49.4%	8.5%	2.2%	2.2%	14.3%	100%
Total Cost	\$703.72:	\$1,509.54:	\$263.90	\$74.80:	\$74.81:	\$435.49:	\$3,062.26
Volume (M.B.M.) treated	48,120:	229,580:	58,630	2,630:	19,940:	63,330:	420,230
Cost per (M.B.M.) treated	\$14.62:	\$6.59:	\$4.53	\$28.45	\$3.75:	\$6.88:	\$7.85
Cost per Acre (Total)	\$.138:	\$.456:	\$.049	\$.012	\$.06:	\$.137:	\$.13-
<u>CRUISING</u>							
No. Trees Marked	116:	216:	83	82	15:	60:	572
Time Man-days	8.6:	21.3:	7.6	4.5		6:	48
Cost	\$93.70	\$231.32	\$52.54	\$48.87	Cruising Inv. Control Costs		\$65.16: \$521.28
<u>CONTROL</u>							
Standing Trees							
No. Treated	34	143	36	2	10	53	278
Volume	39,630	210,810	58,630	2,630	19,940	63,330	392,970
Time Man-days	21.4	86.8	16.7	2.4	6.9	34.1	168.3
Total Cost	\$ 232.40:	\$942.65:	\$181.36	\$25.93:	\$74.68:	\$370.33:	\$1,827.48
Cost per Tree	\$6.84:	\$6.59:	\$5.05	\$13.03:	\$7.47:	\$6.98:	\$6.58
Cost per M.B.M.	\$5.88:	\$4.47:	\$3.13	\$9.91:	\$3.75:	\$5.85:	\$4.65
Cost per Acre	\$.04:	\$.28:	\$.03	\$.005:	\$.067:	\$.116:	\$.078
Trap Trees							
Treated	54:	59:					113
Volume	8,490:	18,770:					27,260
Time Man-days	30:	29:					58.9
Total Cost	\$325.80:	\$313.85:					\$639.65
Cost per Tree	\$5.03:	\$5.32:					\$5.66
Cost per M.B.M.	\$38.40:	\$16.72:					\$23.47
Untreated	39:	29:					68
Volume	7,960:	16,350:					24,310
Time Man-days	4.8:	2.0:					6.8
Cost	\$52.13:	\$21.72:					\$73.85
Cost per Tree	\$1.34:	\$.75:					\$1.09
Cost per M.B.M.	\$7.44 :	\$1.33:					\$3.02